(HRP2)-based drug sensitivity assay for testing of fresh isolates of *Plasmodium falciparum* in the field. In contrast to the HRP2 laboratory assay, the field assay uses a procedure that further simplifies the handling and culturing of malaria parasites by omitting centrifugation, washing, the use of serum, and dilution with uninfected red blood cells. A total of 40 fresh *Plasmodium falciparum* isolates were successfully tested for their susceptibility to dihydroartemisinin, mefloquine, quinine, and chloroquine (50% inhibitory concentration [IC_{50}] = 3.43, 61.89, 326.75, and 185.31 nM, respectively). Results very closely matched those obtained with a modified World Health Organization schizont maturation assay (R^2= 0.96, $P < 0.001$; mean log difference at IC_{50} = 0.054).

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IN VITRO ANTIMALARIAL EFFICACY AND METABOLIC STABILITY OF BENZIMIDAZOLE DERIVATIVES

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Benzimidazole derivatives are synthetic compounds used effectively for the treatment of helminthiosis. *In vitro* studies of analogs synthesized at the Universidad Nacional Autonoma de Mexico have shown the new analogs to be effective against the protozoa *Giardia lamblia* and *Trichomonas vaginalis*, and the helminth *Trichinella spiralis*. The mechanism of action is different from the inhibition of the cytoskeletal protein, tubulin. The objective of these studies was to evaluate the broadly acting agents for their antimalarials properties and metabolic stability *in vitro*. Efficacy of 30 analogs against the W2 and D6 strains of *P. falciparum* was assessed by the uptake of ^{3}H-labeled hypoxanthine. Results showed the four most efficacious analogs to have IC_{50}s of 162, 577, 592, and 2896 ng/ml, respectively against the W2 strain of *P. falciparum*. The same compounds had IC_{50}s of 141, 769, 811, and 2942 ng/ml, respectively against the D6 strain. Multi-species metabolism of the four most efficacious compounds was also investigated using liquid chromatography coupled to mass spectrometry (LC/MS). The disappearance of parent compound over time in the presence of pooled human, rat, mouse, or rhesus monkey liver microsomes was monitored in order to determine the *in vitro* metabolic stability of each compound. Putative metabolites were also identified and preliminary structural elucidation was done using LC-MS/MS. Results indicated that hydroxylation was the primary route of metabolism for all species investigated. These studies provide insight for the design and synthesis of new analogs with desired pharmacological properties.

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